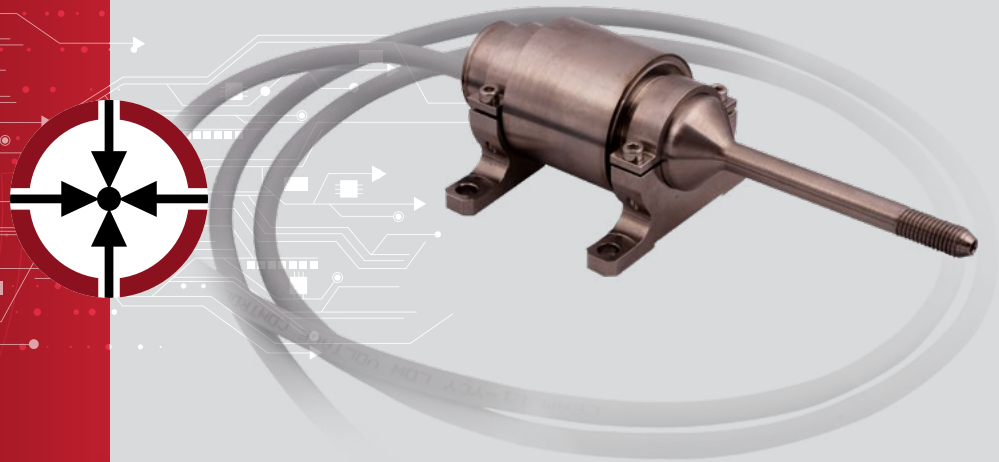


ESCP-SAPT

MEMS Capacitive Pressure Transmitter
for Aerospace Applications



ES Systems is currently developing an ITAR free family of Standard Accuracy Pressure Transducers (SAPT) for space applications. ESCP-SAPT can be integrated within propulsion systems in order to measure the static pressure of the propellant fluid. ESCP-SAPT is compatible with various fluids, including the new generation of green propellants.

ESCP-SAPT pressure transmitters consist of a MEMS capacitive pressure sensor die, which is underpinned by ES' innovative microfabrication process that has been proven suitable for the mechanical, radiation and temperature environment of space applications. The full custom, radiation hardened signal conditioning IC was designed entirely by ES, utilizing a standard deep submicron CMOS process of a European foundry.

ESCP-SAPT is an all welded Titanium (Ti6Al4V) sensor, optimized to achieve the lowest mass possible (<160 g) combined with compact size (110mm x 55mm x 40mm), while being compatible with both low pressure ranges (7 bar, 22bar) and high pressure ranges (150 bar, 310 bar).

ESCP-SAPT features an analog pressure output (0-5 V) along with temperature reading to accommodate offline calibration and temperature compensation and reach accuracy of $\pm 0.3\%$ FS.

*Developments are made under an activity funded by the European Space Agency. The view expressed herein can in no way be taken to reflect the official opinion of the European Space Agency.



62, I. Metaxa str.
19441 Koropi - Athens, Greece

T +30 216 2000500

F +30 216 2000555

info@esenssys.com

www.esenssys.com



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Specifications

Pressure Ranges (Absolute)	7 bar, 22 bar, 150 bar, 310 bar
Media Compatibility	Hydrazine, MON, NMH, Green Propellant, IPA, GHe, GN ₂ , GXe, Deionized H ₂ O, HFE
Proof Pressure	2 x Operating Pressure (MEOP)
Burst Pressure	4 x Operating Pressure (MEOP)
Accuracy	±0,3 % FS
Pressure Output Type	Analog Output 0-5,0 V
Material / Including Wetted Surfaces	Ti (Ti6Al4V) / Ti grade 1
Mounting	4 Mounting Screws
Electrical Interfaces	Flying Lead Harness
Power Supply	7 – 30 VDC
Power Consumption	<310 mW
Pneumatic / Hydraulic Interface	Weldable Inlet Tube
Mass	<160 gr
Mechanical Envelope (l x w x h)	110mm (for 35mm of interface tube) x 55mm x 40mm
Operating Temperature	-20°C... + 75°C



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